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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/472,585	12/27/99	DONG	J 12109312US01
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023552  
MM71/0913  
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MINNEAPOLIS MN 55402-0903

EXAMINER

HARRINGTON, A

ART UNIT

PAPER NUMBER

2873

DATE MAILED:

09/13/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/472,585	Dong et al.	
	Examiner	Art Unit	
	Alicia M. Harrington	2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 December 1999.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f):  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)              | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other:  |

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## DETAILED ACTION

### ***Information Disclosure Statement***

The information disclosure statement filed on 6/9/00 has been considered by the Examiner.

### ***Drawings***

The drawings are objected to because figure 1 has no textual labels. Correction is required.

### ***Specification***

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 250 words. It is important that the abstract not exceed 250 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because the abstract contains claim language in line 5 (***comprises***). In line 4, there are too many spaces between the words "for" and "analysis"- typing error. Correction is required. See MPEP § 608.01(b).

### ***Claim Objections***

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Claims 7-10 are objected to because of the following informalities: In lines 4 and 5, the the isotope carbon dioxide 13 is improperly written symbolically as carbon oxide. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al. (US 4,990,780).

Regarding claim 1, a spectroscopic method for analyzing isotopes (hydrogen bromide; col. 2, lines 36-37 and 40-48) contained in gas to be measured by identifying and quantitatively measuring isotopes by using wavelengths of absorption spectra absorbed in existence of said isotopes, the improvement is characterized in that the method comprises

using a semiconductor laser beam (col. 2, lines 48-57) for wavelength of absorption spectra;

uses a reference gas (col. 2, lines 53-57) for identification of said isotopes wherein the reference gas contains collating components (critically compared components) having two wavelengths of a well known absorption spectrum of said isotopes (see col. 4, lines 17-24/ 79H and 81H).

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Regarding claim 2, see Examiner's notes in claim 1.

Regarding claim 3, Lee's system can also measure isotopes of carbon dioxide (see col. 4, lines 25-30).

Regarding claims 4-6, Lee's system emits a beam of spectra having wavelength zone of 2000 nm band (see col. 2, line 20 and col. 5, lines 25-27).

Regarding claim 11, Lee disclose uses a reference gas (col. 2, lines 53-57) for identification of said isotopes wherein the reference gas contains collating components (critically compared components) having two wavelengths of a well known absorption spectrum of said isotopes (see col. 4, lines 17-24/ 79H and 81H) where system emits a beam of spectra having wavelength zone of 2000 nm band (see col. 2, line 20 and col. 5, lines 25-27). Lee also uses a semiconductor, see col. 11, lines 14-16; #13. Lee uses these absorption spectra in the infrared region to determine during engine combustions the consumption /presence of oil (identifying impurities generated) by identifying the hydrogen bromide absorption spectra.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 4,990,780).

Regarding claims 7-10, as discussed above, Lee's system measures isotopes of carbon dioxide for measuring an abundance ratio by absorbance of the gases in the exhaust. Lee fails to specifically disclose that carbon isotopes are 12 carbon dioxide and 13 carbon dioxide. However, the Examiner takes Official Notice that it is well known in the art to study these carbon isotopes in the infrared band. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use these two isotopes in a concentration ratio comparison in the infrared region since these isotopes have well known/tell tale absorption wavelengths in the infrared. In addition, Lee teaches the laser is tunable so it can emit light at several different wavelengths in this region. Therefore, Lee discloses the claimed invention except for 12 carbon dioxide and 13 carbon dioxide gas having a specific pair of wavelengths between 1995.99 nm and 2054.37 nm; and it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a pair in this wavelength range since it is in the infrared region, and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum ranges involves only routine skill in the art. In re Aller, 105 US PQ 233.

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**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Spring et al (US 5,464,980) discloses a flame sensor method and method of sensing the flame.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M. Harrington whose telephone number is 703 308 9295. The examiner can normally be reached on Monday to Wednesday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 703 308 4883. The fax phone numbers for the organization where this application or proceeding is assigned are 703 308 7724 for regular communications and 703 308 7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

  
AMH  
September 10, 2001

  
Georgia Epps  
Supervisory Patent Examiner  
Technology Center 2800